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is given under each species and the references are given in an unusually clear way. The diagnosis of each species in Latin is long enough to give a good description and short enough so as not to be cumbersome. The general notes in German are full of valuable information, and presented in a concise and clear way. Even the American species are treated in a way very unlike the unsatisfactory one in which Europeans usually monograph American plants. If this monograph is compared with that of *Oenothera* by L  veill  , its superiority in quality is quite evident.

After I had glanced over the 106 pages of the text and studied what was of most interest to me, especially all that related to American botany, I turned to the preface and here awaited me the greatest surprise. The author is a woman. On the title page the author's name is given as J. Witasek without any title whatever, and in the text the personal element is as it ought to be so eliminated that there is no indication of the gentler sex. Only the first line of the preface contains the word "Verfasserin," followed by a few "sie" and "ihre." Not that I believe a woman incapable of a good piece of work, far from it; but in Europe there are but few women that receive a university education and besides their education is generally very unlike that of men. Therefore, the monograph indeed is a credit to both the author and her sex, as well as to the university where the work was done.

P. A. RYDBERG.

PROCEEDINGS OF THE CLUB

TUESDAY, NOVEMBER 11, 1902

The meeting was held at the College of Pharmacy; thirteen persons present; Dr. Rusby in the chair.

The scientific program of the evening consisted of a paper by Dr. L. M. Underwood on "The Gold and Silver Ferns." Dr. Underwood said that characters based upon position and form of sori and indusia have perhaps been emphasized too much in classification; in some species the indusium may be developed or may be wanting on the same plant. There is now a tendency to return to the recognition of the fibro-vascular system as an

element in classifying ferns. Mainly free-veined ferns occur in Devonian and Carboniferous remains. Anastomosing veins seem to have developed later ; and even now, they form the predominant feature in but two of the ferns of our northern states, *Onoclea sensibilis* and *Woodwardia areolata*. The pinnate and flabellate types of venation are very distinct, but are connected in appearance by a modification of the last type with successive alternations of its dichotomy forming a prolonged axis. The ferns known as gold and silver ferns were included in 1811 in the genus *Gymnogramme*. Some twenty genera have since been segregated from it, some of them on sufficient grounds. Many garden hybrids and horticultural varieties have been developed. With the exception of a species in Madagascar, the group is confined to the tropics of America, where the species known as the silver fern is perhaps the most common fern known. The goldenback fern of California is perhaps most familiar to ordinary knowledge ; its range is from Alaska to Lower California, but not eastward of the Sierras. In life it is of a bright golden-yellow beneath (often replaced by silvery powder), a brilliant green above ; in the dry season it coils up involutely, exposing only the under surface, which is covered by its peculiar golden waxy powder.

This and other ferns of the arid region prevent too great transpiration of water by developing waxy or resinous powders, or by layers of wool or of scales. A Mexican species, *Notholaena aurantiaca*, was exhibited, which combines two protections, powder and scales. The silver fern of our arid Southwest finally becomes almost chalky beneath ; it becomes coiled almost into a ball in the dry season.

Discussion followed upon the true interpretation of the function of the waxy powder, Dr. C. C. Curtis deeming it to accomplish two purposes, that of plugging stomata and that of reflecting heat. Dr. Rusby recalled the suggestion made by Mr. Charles F. Cox some years ago, to the effect that plant hairs carry on metabolism and aid nutrition.

Dr. Rusby also described the appearance and habitats of several species which he had been familiar with in Bolivia and in our own Southwest ; in the Rockies where *Notholaena* and *Cheilanthes*

grow together from the same crevices of rock, they respond to rain with remarkable quickness. In the dry season when everything else is seemingly dead, if a rain should occur, their coiled fronds quickly become bright green, and well expanded, though perhaps curled again into little balls within a few days.

EDWARD S. BURGESS,
Secretary.

WEDNESDAY, NOVEMBER 26, 1902

The meeting was held at 3:30 P. M., at the New York Botanical Garden ; Dr. H. H. Rusby in the chair.

Dr. MacDougal spoke on some examples of propagation by bulbils. Two kinds of bulbils were spoken of, namely, those which morphologically are stems, and those which morphologically are roots. He exhibited specimens of *Dioscorea villosa* which bore in the axils of the leaves large bodies described as bulbils of the first sort, and *Ranunculus Ficaria* and *Globba Schomburgkii* which had similarly placed bodies, much smaller, however, and morphologically roots. In any case the bulbils reproduce the plant by germinating after falling to the ground. Drawings of *Lysimachia terrestris* were shown that represented the changes effected in the habit of the plant brought about by being grown in water.

A specimen of the so-called "wood-rose" of Guatemala was also exhibited by Dr. MacDougal. This curious malformation is a hypertrophy of a branch of some Leguminous tree or shrub and is caused by an unknown species of *Loranthus*.

Dr. N. L. Britton made remarks on the plant conditions and the general plant formations of the island of St. Kitts, British West Indies.

The meeting then adjourned and the members of the Club under Dr. Britton's guidance visited the greenhouses and examined some of the plants that have recently been brought by the Botanical Garden from St. Kitts.

W. A. CANNON,
Secretary pro tem.

NEWS ITEMS

Professor J. C. Arthur, of Purdue University, Lafayette, Indiana, is spending a month at the New York Botanical Garden.